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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,409	01/23/2004	B. Mark Hirst	200311455-1	9480

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EXAMINER	
LAXTON, GARY L	
ART UNIT	**PAPER NUMBER**
2838	

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,409	HIRST, B. MARK	
	Examiner	Art Unit	
	Gary L. Laxton	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38 and 40-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38 and 40-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/06/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-52 have been considered but are moot in view of the new ground(s) of rejection.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:
(1) if a machine or apparatus, its organization and operation;
(2) if an article, its method of making;
(3) if a chemical compound, its identity and use;
(4) if a mixture, its ingredients;
(5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that

the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the patent abstract as written in it's current form is not "a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains." Correction is required. See MPEP § 608.01(b).

The content of the present patent abstract does not even come close to being written as such to enable the reader thereof, regardless of his or her degree of familiarity with patent documents, to determine quickly from a cursory inspection of the nature and gist of the technical disclosure. Moreover, the present abstract does not include that which is new in the art to which the invention pertains. See MPEP § 608.01(b) and CFR 1.72(b).

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The present title is "Power Converter". There are thousands of power converters. Therefore, it is evident that the applicant has not now just invented the "Power Converter". Thus, the title is not clearly indicative of the invention. The title should indicate what distinguishes the applicant's power converter from the thousands of other power converters?

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5, 7, 9, 11, 18, 20, 22, 24, 25, 31-36, 41, 43, 44, 45, 47, 49 and 51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Herbert (US 6,115,267).

Claims 1-3, 5, 7, 9, 11, 18, 20, 22, 24, 25, 31-36 and 41; Herbert, figure 8, discloses a power converter that includes a capacitor (113 or 115), the capacitor is coupled in the converter so as to drive a primary of a transformer (123) without signal rectification. The capacitor is adapted to switch between charging and discharging operation at different portions of a current cycle (i.e. AC input waveform). Obviously, the capacitor is adapted to switch between charging and discharging operation at or substantially near zero current. AC input and DC load (Vout) for a DC consuming device. Full wave rectification. At least two transistor totem-pole configurations (143, 145, 147, 149); one of the configurations coupled to an AC line (171) and another of the configurations coupled to an AC neutral (123); a capacitance device (113, 115) coupled between the configurations (via 123) to drive a primary of an isolation transformer (123).

Claims 43, 44, 45, 49 and 51; means for converting from an AC voltage to a DC voltage, figure 8; the means for converting including a means for isolation (27), the means for isolation including a primary and a secondary; the means for converting being coupled so that, in

operation, AC to DC voltage rectification does not occur on the primary of the means for isolation.

However, Herbert does not expressly disclose a parasitic diode coupled across at least one of the transistors. MOSFETs inherently comprise a parasitic diode coupled across therein. Hence the name parasitic or intrinsic or internal or body diode etc.

8. Claims 1-3, 5, 7, 10-18, 20, 22, 24-36, 41-43, 47, 49, 51 and 52 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huang et al (US 6,344,979).

Claims 1-3, 5, 7, 10-18, 20, 22, 24-36 and 41-42; Huang et al disclose a power converter, figure 4; the power converter includes a capacitor (C_S), the capacitor (C_S) is coupled in the converter so as to drive a primary of a transformer (130) without signal rectification (e.g. since the circuit receives a DC input voltage (Vin), there is no need for signal rectification). The capacitor is adapted to switch between charging and discharging operation at different portions of a current cycle. Obviously, the capacitor is adapted to switch between charging and discharging operation at or substantially near zero current. AC input and DC load (Vout) for a DC consuming device. Full wave rectification. At least two transistor totem-pole configurations (figure 12: S1, S2 & S3, S4); one of the configurations coupled to an AC line (L_S) and another of the configurations coupled to an AC neutral (1/2 Vin); a capacitance device (C_S) coupled between the configurations (via L_M, L_S) to drive a primary of an isolation transformer (L_M). The power converter comprises an AC/DC converter (L_S, C_S, L_M, D1, D2, Co, Vo, Ro).

Claims 43, 47, 49, 51 and 52; means for converting from an AC voltage to a DC voltage (L_S, C_S, L_M, D1, D2, Co, Vo, Ro), at least figure 10; the means for converting including a means for isolation (L_M), the means for isolation including a primary (C_S, L_S) and a secondary (D1, D2); the means for converting being coupled so that, in operation, AC to DC voltage rectification does not occur on the primary of the means for isolation.

However, Huang et al does not expressly disclose a parasitic diode coupled across at least one of the transistors. MOSFETs inherently comprise a parasitic diode coupled across therein. Hence the name parasitic or intrinsic or internal or body diode etc.

9. Claims 1-3, 5, 7, 10-18, 20, 22, 24-36, 41-43, 47, 49, 51 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al (US 6,236,192).

Claims 1-3, 5, 7, 10-18, 20, 22, 24-36 and 41-42; Suzuki et al disclose a power converter; the power converter including a charge pump capacitor (C1, C2 or C3), the charge pump capacitor coupled to a two transistor totem-pole configuration (SW1, SW2) in the converter so as to drive a primary of an isolation transformer and wherein a parasitic diode is coupled across at least one transistor in the two transistor totem-pole configuration(i.e. 71a).

Claims 43, 47, 49, 51 and 52 means for converting from an AC voltage to a DC voltage (L_S, C_S, L_M, D1, D2, Co, Vo, Ro), at least figure 10; the means for converting including a means for isolation (L_M), the means for isolation including a primary (C_S, L_S) and a secondary (D1, D2); the means for converting being coupled so that, in operation, AC to DC voltage rectification does not occur on the primary of the means for isolation. Wherein the means for converting includes being coupled to a two transistor totem-pole configuration: and wherein a parasitic

diode is coupled across at least one transistor in the two transistor totem-pole configuration (i.e. 71a).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 4, 6, 19, 21, 37, 38, 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herbert (US 6,115,267) in view of Walsh et al (US 5,892,983).

Herbert discloses the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein the power converter is incorporated on a motherboard and except for wherein the DC power consuming device comprises at least one of a fax, printer, scanner, and copier.

Motherboards comprising power supplies to provide power to peripheral devices such as printers is very well known in the art as a method of providing power to the components in computer systems. Walsh et al, for example, teach a motherboard comprising a power supply and connected to a fax, printer, scanner, or copier in order to provide an electronic computer system with power management to provide power requirements to peripheral devices such as faxes, printers, scanners or copiers.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Herbert to be integrated on a motherboard

and to provide power to a fax, printer, scanner or copier as taught by Walsh et al in order to supply power to the fax, printer, scanner, or copier from a computer system.

12. Claims 4, 6, 19, 21, 37, 38, 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al (US 6,344,979) in view of Walsh et al (US 5,892,983).

Huang et al disclose the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein the power converter is incorporated on a motherboard and except for wherein the DC power consuming device comprises at least one of a fax, printer, scanner, and copier.

Motherboards comprising power supplies to provide power to peripheral devices such as printers is very well known in the art as a method of providing power to the components in computer systems. Walsh et al, for example, teach a motherboard comprising a power supply and connected to a fax, printer, scanner, or copier in order to provide an electronic computer system with power management to provide power requirements to peripheral devices such as faxes, printers, scanners or copiers.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Huang et al to be integrated on a motherboard and to provide power to a fax, printer, scanner or copier as taught by Walsh et al in order to supply power to the fax, printer, scanner, or copier from a computer system.

13. Claims 4, 6, 19, 21, 37, 38, 46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6,236,192) in view of Walsh et al (US 5,892,983).

Suzuki et al disclose the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein the power converter is incorporated on a motherboard and except for wherein the DC power consuming device comprises at least one of a fax, printer, scanner, and copier.

Motherboards comprising power supplies to provide power to peripheral devices such as printers is very well known in the art as a method of providing power to the components in computer systems. Walsh et al, for example, teach a motherboard comprising a power supply and connected to a fax, printer, scanner, or copier in order to provide an electronic computer system with power management to provide power requirements to peripheral devices such as faxes, printers, scanners or copiers.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Huang et al to be integrated on a motherboard and to provide power to a fax, printer, scanner or copier as taught by Walsh et al in order to supply power to the fax, printer, scanner, or copier from a computer system.

14. Claims 8, 23, 40 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herbert (US 6,115,267) in view of Balakrishnan (US 6,813,168).

Herbert discloses the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein power converter includes an input pi filter.

Balakrishnan teaches that known power supply techniques employ input EMI filter circuits of varying complexity. The simplest form of input EMI filter is known as a pi filter and is used in low-power power supplies to reduce power supply cost (col. 1 lines 25-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Herbert to include a pi filter in order to reduce power supply cost as taught by Balakrishnan.

15. Claims 8, 23, 40 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al (US 6,344,979) in view of Balakrishnan (US 6,813,168).

Huang et al disclose the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein power converter includes an input pi filter.

Balakrishnan teaches that known power supply techniques employ input EMI filter circuits of varying complexity. The simplest form of input EMI filter is known as a pi filter and is used in low-power power supplies to reduce power supply cost (col. 1 lines 25-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Huang et al to include a pi filter in order to reduce power supply cost as taught by Balakrishnan.

16. Claims 8, 23, 40 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al (US 6,236,192) in view of Balakrishnan (US 6,813,168).

Suzuki et al disclose the claimed invention in regards to claims 1, 34 and 43 supra, except for wherein power converter includes an input pi filter.

Balakrishnan teaches that known power supply techniques employ input EMI filter circuits of varying complexity. The simplest form of input EMI filter is known as a pi filter and is used in low-power power supplies to reduce power supply cost (col. 1 lines 25-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the power supply of Huang et al to include a pi filter in order to reduce power supply cost as taught by Balakrishnan.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,434,019 Baudelot et al disclose that every MOSFET has a parasitic/intrinsic bipolar freewheeling diode reverse-connected in parallel.

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

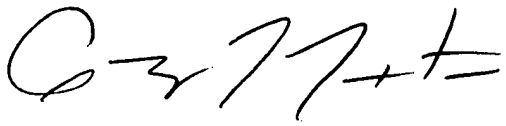
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gary L. Laxton
Primary Examiner
Art Unit 2838

1/26/2006